

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A tilt control device for controlling a radial tilt of a recording surface of an optical disc with respect to an optical recording/reproducing beam, said tilt control device comprising:

5 control means for generating two focus controlling outputs;
and

10 actuating means for receiving said two focus controlling
outputs for controlling a focusing state and the radial tilt of the
optical recording/reproducing beam ~~based on~~ utilizing said received
~~two focus controlling outputs, characterized in that~~ wherein said
control means determines a radial tilt value based on a
differentiation of focus control values obtained at different radii
of said optical disk.

2. (Currently Amended) The device as claimed in claim 1,
~~characterized in that~~wherein said actuating means comprises a split
focus coil arrangement for providing focus and tilt adjustment, and
said control means supplies said two focus controlling outputs to
5 respective coils of said split focus coil arrangement.

3. (Currently Amended) The device as claimed in claim 1,
~~characterized in that~~wherein said focus controlling outputs are
Proportional Integral Derivative (PID) controller outputs.

4. (Currently Amended) The device as claimed in claim 1,
~~characterized in that~~wherein said control means positions a sledge
at at least two different radial positions, controls said actuating
means to adjust the focus, and measures said focus control values
5 at said at least two different radial positions.

5. (Currently Amended) The device as claimed in claim 1,
~~characterized in that~~wherein
said control means calculates a mean disc tilt value in a tilt
register.

6. (Currently Amended) The device as claimed in claim 1,
characterized in that wherein

said control means generates said focus controlling outputs based
on measured mean focus control values and corresponding radial
5 steps between two measurements.

7. (Currently Amended) ~~The device as claimed in claim 5~~ A tilt
control device for controlling a radial tilt of a recording surface
of an optical disc with respect to an optical recording/reproducing
beam, said tilt control device comprising:

5 control means for generating two focus controlling outputs;
and

actuating means for controlling a focusing state and the
radial tilt of the optical recording/reproducing beam based on said
two focus controlling outputs, characterized in that wherein said
10 control means determines a radial tilt value based on a
differentiation of focus control values obtained at different radii
of said optical disk, ~~characterized in that wherein~~ said mean disc
tilt value is obtained based on the following equation:

$$r_{\beta} = \frac{G_c c_f \Delta r_f}{c_f (a_1 + a_2) \Delta R}$$

15 where r_f is the difference between two averaged focus control
values measured at initialization, R is a sledge step in radial
direction between two measurements, G_c is the factor between
actuator tilt and disc tilt for which comatic aberrations are
optimal corrected, c_f is a spring constant acting against a
20 focusing movement, c_t is a spring constant acting against a tilt
movement, a_1 is a distance of a first coil of said split coil
arrangement with respect to a symmetry line, and a_2 is a distance
of a second coil of said split coil arrangement with respect to
said symmetry line.

8. (Previously Presented) The device as claimed in claim 1,
wherein said device further comprises a tilt table for storing an
information indicating mean disc tilt values and corresponding
radial positions.

9. (Previously Presented) An optical disc player comprising a tilt control device as claimed in claim 1.

10. (Currently Amended) A tilt control method for controlling a radial tilt of a recording surface of an optical disc with respect to an optical recording/reproducing beam, said tilt control method comprising the ~~steps~~acts of:

5 generating a focus controlling output and a tilt controlling output; and

receiving said focus and tilt controlling outputs at an actuator to control~~controlling~~ a focusing state of the optical recording/reproducing beam and the radial tilt ~~based on~~ utilizing said received focus and tilt controlling outputs; and,

10 ~~characterized in that said method further comprises the step of:~~

 determining a radial tilt value based on a differentiation of focus control values obtained at different radii of said optical disk.

11. (Currently Amended) The method as claimed in claim 10,

~~characterized in that said controlling said focusing state step~~

wherein said receiving said focus and tilt controlling outputs act
comprises using a split coil arrangement arranged to provide a
5 focus adjustment, said focus and tilt controlling outputs being
supplied to respective coils of said split coil arrangement.

12. (Currently Amended) The method as claimed in claim 10,
characterized in that said focus controlling step wherein said
receiving said focus and tilt controlling outputs act comprises
using a mean focus controlling output for tilt control.

13. (Cancelled)

14. (New) A tilt control device for controlling a radial tilt
of a recording surface of an optical disc with respect to an
5 optical recording/reproducing beam, said tilt control device
comprising:

a processor configured to generate two focus control outputs;
and

an actuator configured to:

10 receive said two focus control outputs; and

control a focusing state and the radial tilt of the
optical recording/reproducing beam utilizing said received two
focus control outputs, wherein said processor determines a
radial tilt value based on a differentiation of focus control
15 values obtained at different radii of said optical disk.

15. (New) The device as claimed in claim 14, wherein said
actuator comprises a split focus coil arrangement for providing
20 focus and tilt adjustment, and said processor supplies said two
focus control outputs to respective coils of said split focus coil
arrangement.

25 16. (New) The device as claimed in claim 14, wherein said
processor calculates a mean disc tilt value in a tilt register.

17. (New) The device as claimed in claim 16, wherein said mean
disc tilt value is obtained based on the following equation:

$$r_{\beta} = \frac{G_c c_t \Delta r_f}{c_f (a_1 + a_2) \Delta R}$$

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where r_f is the difference between two averaged focus control values measured at initialization, R is a sledge step in radial direction between two measurements, G_c is the factor between actuator tilt and disc tilt for which comatic aberrations are optimal corrected, c_f is a spring constant acting against a focusing movement, c_t is a spring constant acting against a tilt movement, a_1 is a distance of a first coil of said split coil arrangement with respect to a symmetry line, and a_2 is a distance of a second coil of said split coil arrangement with respect to said symmetry line.

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18. (New) The device as claimed in claim 14, wherein said device further comprises a tilt table for storing an information indicating mean disc tilt values and corresponding radial positions.

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19. (New) The device as claimed in claim 14, wherein said processor generates said focus control outputs based on measured mean focus control values and corresponding radial steps between two measurements.